

(No Model.)

T. A. EDISON.

MOLD FOR CARBONIZING INCANDESCENTS.

No. 263,144.

Patented Aug. 22, 1882.

Fig. 1.

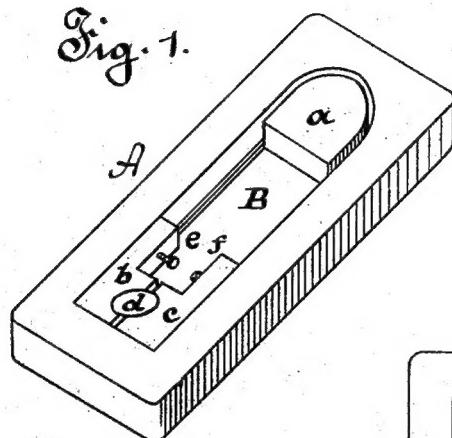


Fig. 2.

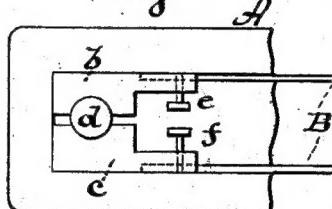
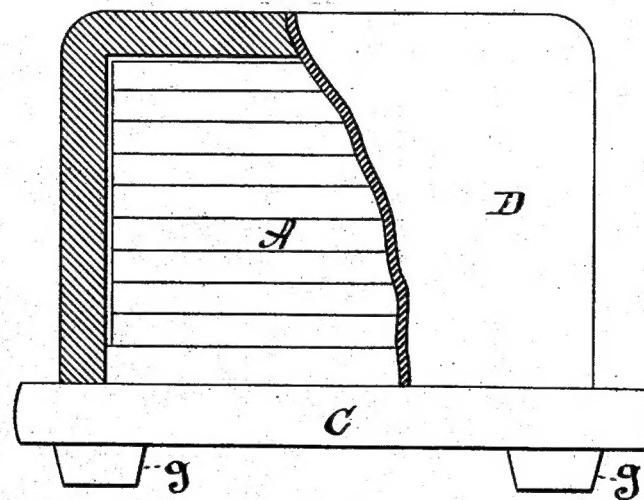


Fig. 3.



WITNESSES:

O. D. Morse  
M. J. Gage

INVENTOR:

T. A. Edison  
BY  
Dyer & Wilber  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY, ASSIGNOR TO THE  
EDISON ELECTRIC LIGHT COMPANY, OF NEW YORK, N. Y.

## MOLD FOR CARBONIZING INCANDESCENTS.

SPECIFICATION forming part of Letters Patent No. 263,144, dated August 22, 1882.

Application filed November 11, 1881. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Molds for Carbonizing Filaments or Slips, (Case No. 349;) and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object I have in view is to produce a mold for carbonizing the incandescent carbon conductors or loops of my electric lamps, which will be capable of withstanding the high heat to which it is necessary to raise the conductors or loops in the process of carbonizing, will not affect the carbon conductors injuriously, and will be durable in use and cheap in manufacture; and, further, to provide a method and means for keeping the conductors under proper strain while being carbonized, and insure the equal contraction of both limbs of each carbon loop, so as to overcome as fast as possible the loss caused by the unequal contraction of such limbs.

In carrying out the first part of my invention, I employ pure plumbago, which is subjected to hydraulic or other heavy pressure in perfectly-shaped dies or molds. These forming-molds give to the carbonizing-molds the form desired. By making the carbonizing-molds of pure plumbago great durability and cheapness are obtained. The pure plumbago, also, does not affect the carbon filaments injuriously when raised to a white heat. The crucible mixtures of plumbago and clay could not be used for this purpose, since the clay would be reduced, and the oxygen thrown off by the same would combine with the carbon of the incandescent conductors and affect the same injuriously. A mold of crucible mixture would also crumble to pieces within a limited time, and would not be nearly as durable as the mold of plumbago. I may add to the plumbago in the manufacture of the carbonizing-molds a small proportion of gum-dextrine or other carbonizable gluten which will combine with the plumbago at a high heat and lock the particles of the plumbago together, this glutinous substance not acting upon the filaments during carbonization.

The second part of the invention is carried out by holding the looped filament at its center and allowing the limbs to contract while under strain. For this purpose the mold is provided with a stationary block, forming, with the side of the mold, a groove which receives the bent center of the filament. The ends of the filament are held by movable blocks resting on the bottom of the mold, which movable blocks are held apart against the sides of the mold by the weight of an intermediate block or plug. These movable blocks will be drawn along in the mold by the contraction of the filament in being carbonized, and their friction on the mold caused by their weight will be sufficient to keep the filament under proper strain.

Instead of holding the loop at the center and allowing its ends to draw up, both the center and ends may be held by movable blocks and move toward each other when the filament contracts under carbonization.

The flask is made in two parts—a flat base, upon which the molds are placed in tiers, having lugs or feet on its bottom to allow the circulation of heat beneath the flask, and a cover, which is also the body of the flask, and which is placed over the molds and rests upon the base. The base of the flask may be made of nickel; and with a base of crucible mixture or nickel, the flask may be provided with a double cover—an interior one of nickel and an outer one of crucible mixture.

The foregoing will be better understood by reference to the drawings, in which Figure 1 is a perspective view of the mold with the filament placed therein preparatory to carbonizing; Fig. 2, a top view of one end of the mold and the blocks for holding the ends of the filaments; and Fig. 3, a side elevation of the flask, partly broken away to show the molds therein.

Like letters denote corresponding parts in all the figures.

A is the carbonizing-mold, of plumbago, and a is the fixed block for holding the center of the filament B to be carbonized. This block a may be of plumbago pressed integral with the mold, or of nickel secured in position. The movable blocks are shown at b c, and the separating plug or block at d. The filament

is secured to the blocks *b c* by pins *e f*, behind which the enlarged ends of the filament catch, such ends resting in slots in the blocks. The movable blocks *b c* are made of nickel.

5 C is the base of the flask, provided with feet *g*; and D, the cover, forming a chamber for inclosing the molds and contents, both made of suitable refractory material.

What I claim is—

- 10 1. A mold for carbonizing slips or filaments formed of plumbago, and constructed, as described, to receive and retain the slips or filaments under strain, while allowing movement for contraction, substantially as set forth.
- 15 2. The method of manufacturing carbon loops for incandescent electric lamps, consisting in carbonizing filaments under strain and allowing their limbs alone or their limbs and center to contract together, substantially as set forth.
- 20

3. A mold for carbonizing loops for incandescent electric lamps, provided with a fixed or movable block for the center of the loop, and movable blocks attached to the ends of such loop, substantially as set forth.

4. In a mold for carbonizing loops for incandescent lamps, the combination, with the block for the center of the loop, of the movable blocks to which the ends of the loop are attached, and the intermediate separating-plug or equivalent, substantially as set forth.

This specification signed and witnessed this 19th day of September, 1881.

THOS. A. EDISON.

Witnesses:

RICHD. N. DYER,  
H. W. SEELY.